Abstract

In this article we developed an inventory model for non-instantaneous decaying items is considered under crisp and fuzzy environment. In this study we have considered stock dependent demand rate and variable deterioration. It is supposed that shortages are allowed and partially backlogged with exponential backlogging rate. Holding cost follows the learning curve. The deterioration rate, ordering cost, shortage cost and deterioration cost are assumed as a triangular fuzzy numbers. The aim of our study is to defuzzify the total cost function by signed distance method. This model is developed in both crisp and fuzzy surroundings. A numerical experiment is given to demonstrate the developed crisp and fuzzy models. Sensitivity analysis is implemented to examine the effect of parameters. The convexity of the total cost function is shown by graphically.

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Index Terms

Computer Science Fuzzy Systems
Keywords

Non-instantaneous-deterioration, Triangular fuzzy numbers, Signed distance, Learning, Partial backlogging